

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number  
**WO 2005/071725 A1**

(51) International Patent Classification<sup>7</sup>: **H01L 21/331**

BA Eindhoven (NL). MAGNEE, Petrus [NL/BE]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(21) International Application Number:  
PCT/IB2005/050259

(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS N.V.**; c/o Shannon Lester, 1109 McKay Drive, M/S-41SJ, San Jose, CA 95131-1706 (US).

(22) International Filing Date: 22 January 2005 (22.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/538,909 23 January 2004 (23.01.2004) US

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS, N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

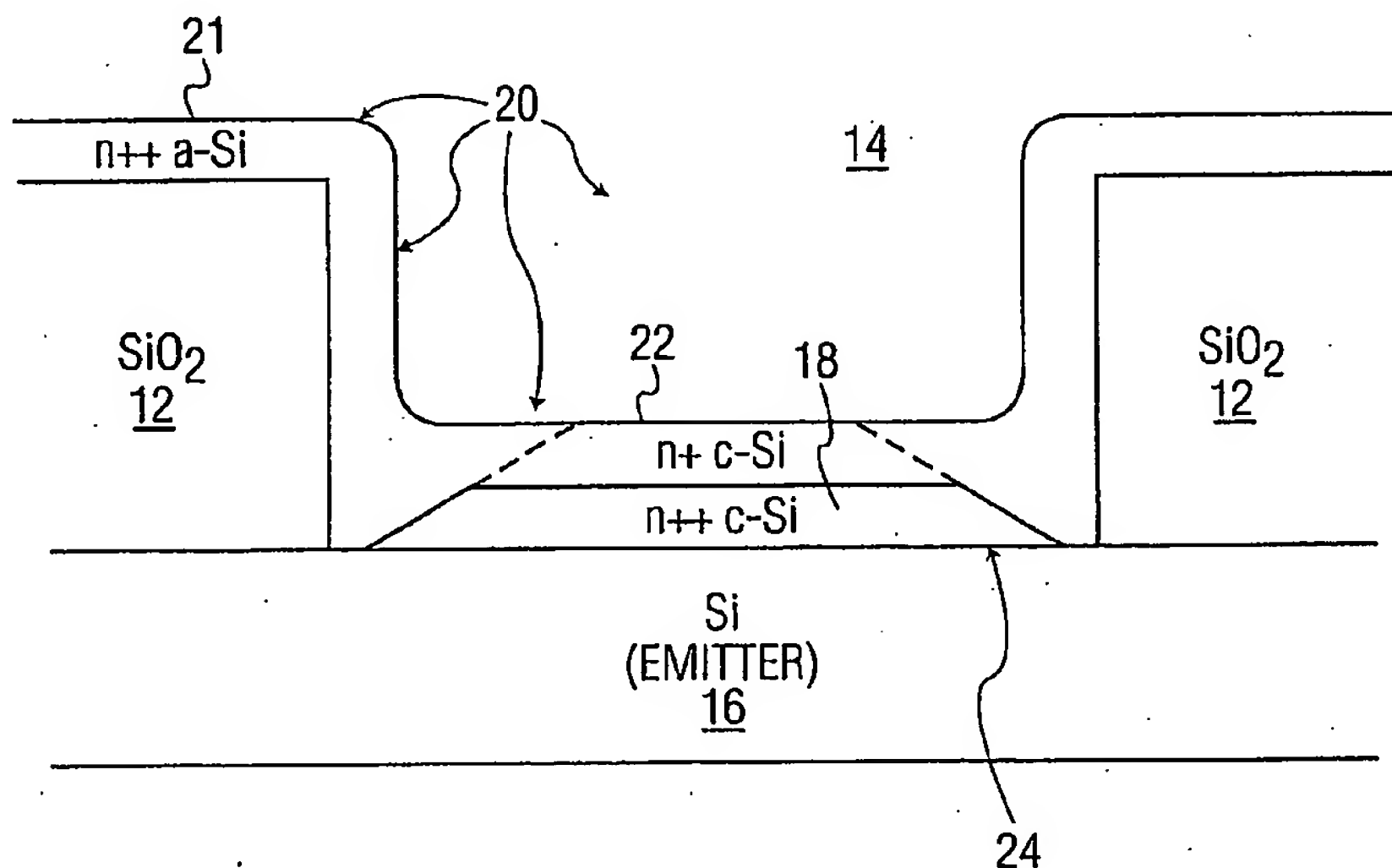
(71) Applicant (for AE only): **U.S. PHILIPS CORPORATION** [US/US]; 1251 Avenue of the Americas, New York, NY 10020 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MEUNIER-BEIL-LARD, Philippe** [FR/BE]; Groenewoudseweg 1, NL-5621

[Continued on next page]

(54) Title: METHOD OF FABRICATING A MONO-CRYSTALLINE EMITTER



(57) Abstract: Fabrication of a mono-crystalline emitter using a combination of selective and differential growth modes. The steps include providing a trench (14) formed on a silicon substrate (16) having opposed silicon oxide side walls (12); selectively growing a highly doped mono-crystalline layer (18) on the silicon substrate in the trench; and non-selectively growing a silicon layer (20) over the trench in order to form an amorphous polysilicon layer over the silicon oxide sidewalls.

WO 2005/071725 A1